

**APPLICATION FOR LETTERS PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**FOR:
OPEN AUTOMOTIVE DOOR ALERT**

**By:
Kevin M. Tourneur
Gayle B. Morris**

OPEN AUTOMOTIVE DOOR ALERT

FIELD OF THE INVENTION

[0001] The present invention relates to warning lights for vehicles, and more particularly to activating the warning lights if a door is opened.

BACKGROUND OF THE INVENTION

[0002] Passenger vehicles such as minivans often park or stop to allow passengers to enter or exit the vehicle. If the vehicle transmission is in park, the driver may not have the brake pedal pressed. Therefore, the brake lights are not activated, and drivers of other vehicles may not be alerted that passengers may be entering or exiting the vehicle. Furthermore, if the vehicle is equipped with sliding passenger doors, drivers of other vehicles may not see that a door is open.

SUMMARY OF THE INVENTION

[0003] Accordingly, an open door alert system is provided for a vehicle comprising a sensor that determines if a door is open. At least one vehicle exterior light is operable to flash when activated. A controller communicates with the sensor and the vehicle exterior lights and activates the exterior vehicle lights if the door is open.

[0004] In a further aspect of the invention, a method for indicating an open door in a vehicle comprises determining if a door is open. One or more vehicle lights are activated to flash if the door is open.

[0005] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

[0007] Figure 1 illustrates an open automotive door alert according to the present invention;

[0008] Figure 2 is a functional block diagram of an open automotive door alert system according to the present invention; and

[0009] Figure 3 is a flow diagram of an open automotive door alert method according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0011] A vehicle 10 such as a minivan or other vehicle includes one or more access doors 12 as shown in Figure 1. In the preferred embodiment, the door 12 is a sliding door as is customary on a van or minivan. It is to be understood, however, that the present invention is not limited to sliding doors. The vehicle 10 includes one or more sets of lights 14 and 16. For example, the lights 14 are located at an anterior portion of the vehicle 10 and may be headlights or turn signal indicator lights. In the preferred embodiment, the lights 14 are the front turn signal indicator lights. The lights 16 are located at a posterior portion of the vehicle 10 and may be taillights, brake lights, or turn signal indicators. In the preferred embodiment, the lights 16 are the rear turn signal indicator lights. When the door 12 is open or ajar, the lights 14 and 16 flash. For example, the lights 14 and 16 may operate similar to vehicle warning lights as are known in the art. In this manner, the lights 14 and 16 flash to alert drivers of other vehicles that passengers may be entering or exiting the vehicle 10.

[0012] An exemplary open automotive door alert system 30 according to the present invention includes a vehicle door sensor 32, a controller 34, an interior door ajar indicator 36, exterior turn signal indicators 38, and interior turn signal indicators 40 as shown in Figure 2. The open automotive door alert system 30 may also include a speed sensor 42 and a key fob 44. The vehicle door sensor 32 senses if the vehicle door is open or closed. The controller 34 communicates with the vehicle door sensor 32 to determine if the vehicle door is open. If the vehicle door is open, the controller 34 activates the exterior turn

signal indicators 38 and/or the interior turn signal indicators 40. In the preferred embodiment, the interior turn signal indicators 40 flash concurrently with the exterior turn signal indicators 38. In this manner, the driver is alerted that the exterior turn signal indicators 38 are operating as warning lights. The controller 34 may also activate the door ajar indicator 36. Additionally, the controller 34 communicates with the key fob 44. The controller 34 is operable to activate the exterior turn signal indicators 38 in response to the door being opened manually, with an interior power door button, or with the key fob 44.

[0013] The controller 34 may activate the exterior turn signal indicators 38 for a fixed duration when the door is opened. Conversely, the exterior turn signal indicators 38 may flash until the door is closed. A driver or other user may disable the open automotive door alert system 30 via an internal switch or the key fob 44.

[0014] The open automotive door alert system 30 may also be responsive to the speed sensor 42 and/or other vehicle components. For example, in the preferred embodiment the open automotive door alert system 30 is not operable if the speed of the vehicle is greater than a threshold such as 1 mph. Therefore, the controller 34 will not activate the exterior turn signal indicators 38 if the vehicle is in motion and the door is merely ajar. Additionally, the open automotive door alert system 30 is operable with the vehicle ignition on or off. The open automotive door alert system 30 may be operable with the vehicle in any gear, or only when the vehicle is in park or neutral. In another

embodiment of the invention, the open automotive door alert system 30 is disabled if the vehicle brake is pressed.

[0015] Referring now to Figure 3, an open automotive door alert system method 50 is shown. At step 52, the method 50 determines if a vehicle door is open. If the door is not open, the method 50 terminates at step 54. If the door is open, the method 50 determines if one or more vehicle conditions are met at step 56 as described above. For example, various vehicle conditions may include, but are not limited to, vehicle speed, a disable condition, and a vehicle gear. If one or more of the conditions are not met, the method 50 terminates at step 54. If the conditions are met, the method 50 continues to step 58. At step 58, the method 50 initiates a timer. The method 50 activates the exterior turn signal indicators at step 60. The method 50 determines if the timer has reached a predetermined duration at step 62. If the timer has reached the predetermined duration, the method terminates at step 54. If the timer has not reached the predetermined duration, the method 50 determines if the door is still open at step 64. If the door is no longer open, the method 50 terminates at step 54. If the door is still open, the method 50 continues to activate the exterior turn signal indicators at step 60. Additionally, the method 50 may determine if other disable conditions are met at step 62, such as a driver-initiated disable.

[0016] The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the gist of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.